

Excessive monthly precipitation—Continued.

State.	No. years noted.	State.	No. years noted.
New York	2	Delaware	0
Ohio	2	Idaho	0
Pennsylvania	2	Indian Territory	0
Tennessee	2	Nevada	0
Wisconsin	2	New Mexico	0
California	1	Oregon	0
Kentucky	1	Rhode Island	0
Minnesota	1	Utah	0
Washington	1	Vermont	0
Arizona	0	West Virginia	0
Connecticut	0	Wyoming	0

Excessive daily precipitation (24 hours).

Kansas	18	Massachusetts	4
Texas	16	Ohio	3
Alabama	12	Kentucky	3
Illinois	12	Montana	3
North Carolina	12	Rhode Island	3
South Carolina	12	Wisconsin	3
Florida	11	Connecticut	2
Iowa	10	New Jersey	2
Mississippi	10	New York	2
Indian Territory	9	California	1
Louisiana	9	Delaware	1
Nebraska	9	District of Columbia	1
Arkansas	8	Maine	1
The Dakotas	8	Oregon	1
Georgia	8	Vermont	1
Tennessee	8	Arizona	0
Maryland	7	Idaho	0
Michigan	7	Nevada	0
Indiana	6	New Hampshire	0
Missouri	6	New Mexico	0
Virginia	6	Utah	0
Colorado	5	Washington	0
Minnesota	5	West Virginia	0
Pennsylvania	5	Wyoming	0

Excessive hourly precipitation.

Kansas	16	Massachusetts	2
Texas	12	Michigan	2
Iowa	11	Minnesota	2
Nebraska	9	Missouri	2
Florida	8	Arizona	1
North Carolina	8	Montana	1
South Carolina	8	Oregon	1
Georgia	6	Vermont	1
Maryland	6	California	0
Ohio	6	Connecticut	0
Pennsylvania	6	Delaware	0
Tennessee	6	District of Columbia	0
Illinois	6	Idaho	0
Indiana	4	Maine	0
The Dakotas	4	Nevada	0
Wisconsin	4	New Hampshire	0
Alabama	3	New Jersey	0
Arkansas	3	New Mexico	0
Indian Territory	3	New York	0
Louisiana	3	Rhode Island	0
Mississippi	3	Utah	0
Virginia	3	Washington	0
Colorado	2	West Virginia	0
Kentucky	2	Wyoming	0

The following tables give exceptionally heavy monthly, daily, and hourly precipitation reported for May during the last 22 years:

Monthly.

Station and state.	Am't.	Year.	Station and state.	Am't.	Year.
	Inches.			Inches.	
Melissa, Tex.	34.85	1881	Melissa, Tex.	21.95	1873
Weatherford, Tex.	27.94	1884			

Daily (24 hours).

Station and state.	Amount.	Date.	Station and state.	Amount.	Date.
	Inches.			Inches.	
Columbus, Ga.	9.92	22, 1880	McConnellsburgh, Pa.	7.08	31, 1889
Fort Wallace, Kans.	9.30	22-23, 1874	Columbia, S. C.	6.90	20, 1886
Durham, Ark.	9.28	1, 1876	Hypoluxo, Fla.	6.89	29-30, 1890
New Frankford, Mo.	9.00	28-29, 1889	Charlesville, Pa.	6.71	31, 1889
Grampian Hills, Pa.	8.37	31, 1889	Denver, Colo.	6.70	21-22, 1876
Clarksville, Tex.	8.25	10-11, 1874	Saint Marys, Ga.	6.60	27, 1887
Weatherford, Tex.	8.00	21, 1884	Petersburgh, Pa.	6.60	31, 1889
Blue Knob, Pa.	7.90	30-31, 1889	Hallettsville, Tex.	6.54	16, 1892
Okolona, Miss.	7.50	4, 1887	Boerne, Tex.	6.52	28, 1880
Shreveport, La.	7.37	6, 1876	Charleston, S. C.	6.38	1-2, 1883

Excessive daily precipitation—Continued.

Station and state.	Amount.	Date.	Station and state.	Amount.	Date.
	Inches.			Inches.	
Little Rock, Ark.	6.33	9-10, 1882	Alum Springs, Va.	5.50	30-31, 1889
Tallahassee, Fla.	6.30	20, 1888	Shreveport, La.	5.45	21, 1884
Bolar, Va.	6.25	30-31, 1889	Osage, Iowa	5.40	23-24, 1880
Harrisburg, Pa.	6.16	31, 1889	Coudersport, Pa.	5.40	31, 1889
Fort Randall, S. Dak.	6.13	15, 1872	Barnegat, N. J.	5.39	31, 1878
Live Oak, Fla.	6.08	4-5, 1890	Mountain Spring, Tex.	5.38	31, 1892
Wauseon, Ohio	6.04	29-30, 1889	Vicksburg, Miss.	5.35	23-24, 1872
Weldon, N. C.	6.03	10, 1887	Frederick, Md.	5.25	31, 1889
Simpsonville, S. C.	6.02	25-26, 1890	Galveston, Tex.	5.24	27-28, 1874
Glenwood, Iowa	6.00	29, 1878	Dale Enterprise, Va.	5.24	30-31, 1889
West Almond, N. Y.	6.00	31, 1889	Luling, La.	5.20	24, 1890
Selin Grove, Pa.	6.00	31, 1889	Eagles Mere, Pa.	5.17	31, 1889
Greenville, Ala.	5.85	30, 1885	Fort Snelling, Minn.	5.12	31, 1877
Emporium, Pa.	5.85	31, 1889	Anderson, S. C.	5.12	19, 1886
Tuscarora, Pa.	5.81	30-31, 1889	Helena, Ark.	5.12	10, 1882
Mobile, Ala.	5.62	29, 1883	Holidaysburgh, Pa.	5.12	31, 1889
Gainesville, Tex.	5.61	31, 1892	Centerville, Mo.	5.10	13-14, 1892
Upper Mattole, Cal.	5.59	5-6, 1891	Lumberton, N. C.	5.07	20-27, 1890
Mayport, Fla.	5.53	3-4, 1880	Caddo Peak, Tex.	5.05	1, 1890
Spartanburg, S. C.	5.53	19, 1886	Ellinwood, Kans.	5.03	17-18, 1877
Hot Springs, Ark.	5.52	27-28, 1888	Council Bluffs, Iowa	5.00	31, 1875
Ellsworth, N. C.	5.50	22, 1880	Emory Grove, Md.	5.00	15, 1879
Clarksville, Tex.	5.50	21, 1878	Fort Niobrara, Nebr.	5.00	26, 1888
Cuero, Tex.	5.50	29, 1887	Palestine, Tex.	5.00	2-3, 1884
Houston, Tex.	5.50	3, 1884	Santee, Nebr.	5.00	27, 1875
Friendship, N. Y.	5.50	30-31, 1889	Columbia, La.	5.00	13, 1890
Smethport, Pa.	5.50	31, 1889			

One hour and less.

Station and state.	Amount.	Time.	Date.
	Inches.	h. m.	
Indianapolis, Ind.	0.55	0-05	31, 1892
Jupiter, Fla.	0.50	0-05	7, 1891
Detroit, Mich.	0.48	0-05	16, 1889
Dodge City, Kans.	0.47	0-05	30, 1892
Kansas City, Mo.	0.45	0-05	5, 1892
Galveston, Tex.	0.45	0-05	5, 1890
Norfolk, Va.	0.43	0-05	21, 1892
Jupiter, Fla.	0.37	0-05	4, 1890
Savannah, Ga.	0.35	0-05	27, 1891
Do.	0.35	0-05	1, 1890
Cleveland, Ohio	0.35	0-05	1, 1892
New Orleans, La.	0.30	0-05	19, 1890
Jupiter, Fla.	0.30	0-05	31, 1892
Kansas City, Mo.	0.30	0-05	31, 1891
Memphis, Tenn.	0.30	0-05	9, 1892
San Francisco, Cal.	0.30	0-05	5, 1889
Chicago, Ill.	0.28	0-05	31, 1892
Norfolk, Va.	0.27	0-05	26, 1891
Detroit, Mich.	0.25	0-05	5, 1892
Saint Louis, Mo.	0.25	0-05	18, 1890
Washington, D. C.	0.25	0-05	31, 1889
Forestburg, Tex.	1.41	0-10	5, 1892
Mount Ida, Ark.	1.20	0-10	10, 1882
Davenport, Iowa	0.50	0-10	3, 1888
Embarrass, Wis.	2.30	0-15	28, 1881
Oklahoma City, Okla.	1.75	0-15	20, 1891
Coatesville, Pa.	1.24	0-15	11, 1891
Toledo, Ohio	1.10	0-15	20, 1880
La Crosse, Wis.	1.04	0-15	3, 1888
Charlotte, N. C.	1.32	0-16	12, 1891
Charleston, S. C.	1.08	0-17	12, 1883
Cumberland, Md. a	1.69	0-20	25, 1890
Mobile, Ala.	1.64	0-20	5, 1879
Fort Riley, Kans.	1.50	0-20	14, 1885
West Leavenworth, Kans.	1.50	0-20	13, 1886
Cincinnati, Ohio.	1.14	0-20	14, 1881
Philadelphia, Pa.	1.00	0-20	20, 1889
Montgomery, Ala.	0.82	0-20	19, 1888
Savannah, Ga.	1.60	0-22	26, 1890
Charlotte, N. C.	1.60	0-22	26, 1890
Palestine, Tex.	1.17	0-23	24, 1888
College Hill, Ohio.	2.38	0-30	27, 1888
Marshall, Mo.	2.08	0-30	29, 1892
Mountain Spring, Tex.	2.00	0-30	31, 1889
Smithfield, Va.	1.80	0-30	31, 1892
Shields, Kans.	1.75	0-30	30, 1892
Cumberland, Md. b.	1.75	0-38	25, 1890
West Leavenworth, Kans.	2.90	0-45	17, 1884
Fort Riley, Kans.	2.70	0-45	13, 1885
West Leavenworth, Kans.	2.70	0-45	11, 1886
Do.	2.40	0-45	12, 1884
Austin, Tex.	2.50	0-48	7, 1884
Hot Springs, Ark.	3.00	0-50	18, 1891
McCausland, Iowa.	3.90	1-00	22, 1890
Rio Grande City, Tex.	3.75	1-00	29, 1885
Bolar, Va.	3.00	1-00	24, 1890

SNOW (in inches and tenths).

The heaviest snowfall of the month was reported at Central Pacific Railroad stations in the Sierra Nevada Mountains, California, where the greatest depth, 63.0, was noted at Summit. The monthly amount exceeded 30.0 at Cross, western

South Dak., and at Fort Washakie, Wyo.; it exceeded 20.0 in the mountains of central Colorado, in south-central Montana, and central Nevada; and was more than 10.0 in northern and western Nebraska, southwestern Oregon, and northeastern Utah. The greatest depth noted in New England was 16.0 at Chelsea and Strafford, Vt.; 8.0 fell at Florida, Mass., 6.0 at Walpole, N. H., and 5.0 at Bethel, Me. In the middle Atlantic states trace, only, of snow was reported in the mountains of Pennsylvania. In the Ohio Valley trace fell at Pittsburg, Pa. In the southern, central, and eastern Lake regions no snow was reported, save trace at Detroit, Mich. In Upper Michigan the amount varied from trace to 2.0. In Wisconsin the greatest depth was 5.2 at Shell Lake. 9.7 was measured at Bismarck, N. Dak., and 8.0 at Flagstaff, Ariz.

From the 2d to 4th a heavy snowstorm prevailed over eastern Wyoming and western Nebraska, causing considerable loss of stock on the ranges. At Sundance, Wyo., 14.0 fell, and the storm almost equaled in severity the storm of April 4, 1892. On the 20th and 21st a heavy snowstorm, with high wind, occurred in western Maine, central Vermont, and central New Hampshire. 10.0 fell at Strafford, Vt., and 4.0 at Adams, Mass.

Snowfall was reported as follows:

Arizona.—Flagstaff, 8; Whipple Barracks, trace. *California*.—Summit, 63; Cisco, 55; Emigrant Gap, 35; Truckee, 22; Boca, 12; Sisson, 5; Towles, 3; Julian, 2; Fort Bidwell, 1.9; Colfax and Iowa Hill, 0.5. *Colorado*.—Climax, 25; Georgetown, 21.9; Breckenridge, 21.8; Gold Hill, 17; Rico, 12; Manhattan, 12.5; Jefferson, 8.2; Carson, 8; Dillon, 7.5; Box Elder, 7; Como (near), 6.5; Fort Collins (near) and Stamford, 5; Gaynor, 4.4; Middle Box Elder, 4; Table Rock, 3.5; Red Cliff, 3; San Luis, 2.6; Wallet, 2.5; Alma, 2.2; La Jara, 1.5; Husted, 1; Le Roy, 0.8; Julesburg, 0.7; Crook, Downing, and Robb, trace.

Idaho.—Martin, 14.5; Henrys Lake, 11; Elk City, 1.5. *Illinois*.—Griggsville and Rushville, trace. *Iowa*.—Osage and Storm Lake, 0.3; Algona, 0.1; Alta (a), Ames (b), Charles City, Clarinda, Des Moines, Grand Meadow, Greenfield, Indianola, Larrabee, Oskaloosa, West Bend, and Williams, trace. *Kansas*.—Sharon Springs and Weskau, 1; Oakley, Tribune, and Wallace (b), trace. *Maine*.—Bethel, 5; Cornish, 3.5; Farmington and Lewiston, 2; Calais, Houlton, and Kents Hill, trace. *Massachusetts*.—Florida (b), 8; Monroe, 4; Turners Falls, trace. *Michigan*.—Rockland, 2; Marquette, 0.9; Detroit, trace.

Minnesota.—Farmington and Maple Plain, 4; Pokegama Falls, 3.9; Saint Charles, 3.5; Bird Island, Camden, Crookston, and Minneapolis, 3; Granite Falls, Montevideo, and Saint Olof, 2; Red Wing, 2; Saint Paul, 1.8; Eagle Bend, 1.5; Lake Winnibigoshish, 1.3; Princeton, 1.2; Fort Ripley, Kinbrae, Leech Lake, Moorhead, Morris, and Sheldon, 1; Alma City, 0.8; Easton, Fergus Falls, and Jackson, 0.5; Fairfield, 0.3. *Missouri*.—Bethany and Darksville, trace. *Montana*.—Cokedale, 20; Dearborn Canyon, 17.5; Choteau, 13; Martinsdale, 9; Miles City, 5.9; Helena, 5; Virginia City, 4; Bozeman, 3.5; Horr, 2.8; Fort Keogh, 0.8; Deer Lodge City, 0.2.

Nebraska.—Kennedy, 22; Valentine, 13.4; Fort Robinson, 10.9; Springview, 6; Kimball, 4; Marquette, trace. *Nevada*.—Tybo, 21; South Camp, 15.7; Austin, 15.2; Belmont, 15; Downeyville, 13; Toano, 11; Ely, 10.5; Fenelon, 8.5; Empire Ranch, 7.8; Palmetto and Stoffel, 6; Tuscarora, 5; Lewers Ranch, 3.7; Wells, 3.2; Golconda, Pioche, and Virginia City, 3; Beowawe, 2; Winnemucca and Belleville, 1.5; Genoa, Halleck, and Mill City, 1; Hawthorne (a and b), 0.5; Carson City and Reno State University, 0.2. *New Hampshire*.—Walpole, 6; Hanover (a), 4; Grafton, 3; North Conway and West Milan, 2; Plymouth, 1; East Canterbury, 0.5; Concord and Peterborough, trace. *New Mexico*.—Estalina Springs and Monero, trace. *New York*.—Malone, 0.4.

North Dakota.—Bismarck, 9.7; Milton, 8; Napoleon, 6.5; Grand Forks, 5.5; Grafton, 5; Grand Rapids, 4; White Earth, 3.5; Gallatin, Saint Johns, and Wild Rice, 2.5; Wah-

peton, 1.5; Fort Buford, 1.1; Churchs Ferry, Hope, and Valley City, 1. *Oregon*.—Siskiyou, 10; Crook, 7; Canyon City, 5.1; Lakeview, 3.5; Fife, 2.5; Silver Lake, 2; Joseph, 1.2; John Day Junction, 1. *Pennsylvania*.—Blue Knob, Dyberry, and Pittsburg, trace. *South Dakota*.—Cross, 38.1; Rapid City, 13.7; Fort Meade, 12.6; Forestburg, 11.3; Spearfish, 8.2; Elkton, 8.1; Watertown, 7; De Smet, 6; Aberdeen, 5; Webster, 3.5; Fort Sully, 3; Mitchell, 2.2; Faulkton, Flandreau, Travere, and Wessington Springs, 2; Rosebud, 1.5; Britton, 1; Parkston, 0.7; Yankton, 0.5; Onida, Tyndall, and Hotch City, trace.

Utah.—Randolph, 12; Grouse Creek, 4.7; Logan, 2.1. *Vermont*.—Chelsea and Strafford, 16; Hartland, 3; Brattleborough, 2; Northfield, 1.5. *Wisconsin*.—Shell Lake, 5.2; Bayfield, 5; Barron and Osceola Mills, 4; Butternut and Hammond, 3; Weston, 2.5; Black River Falls, 2.2; Hudson, Menomonie, Sparta (b), Viroqua, and Whitehall, 2; Hillsborough and Koenig, 1; Madison and Shawano, trace. *Wyoming*.—Fort Washakie, 35.1; Lander, 26.8; Fort Yellowstone, 18.8; Cheyenne, 15.1; Sundance, 15; Fort McKinney, 8.1; Fort Fetterman, 7; La Barge, 5; Camp Pilot Butte, 3; Laramie (b), 2.5.

HAIL.

Description of the more severe hailstorms of the month is given under "Local storms." Hail was reported as follows: 1st, California, Illinois, Indiana, Iowa, Michigan, Missouri, Nebraska, Ohio, Oregon, and South Dakota. 2d, California, Colorado, Illinois, Indiana, Iowa, Kansas, Missouri, Ohio, Oklahoma, Oregon, Texas, Wisconsin, and Wyoming. 3d, Arkansas, California, Illinois, Indiana, Kansas, Kentucky, Michigan, Missouri, New York, North Dakota, Ohio, and Oregon. 4th, Arkansas, Colorado, Connecticut, Indian Territory, Iowa, Kansas, Kentucky, Missouri, Nebraska, Ohio, Oklahoma, Oregon, Tennessee, and Utah. 5th, California, Iowa, Kansas, Michigan, Missouri, Nebraska, New York, Ohio, Oregon, Utah, and Wisconsin.

6th, California, Colorado, Missouri, Oregon, Pennsylvania, Tennessee, Texas, Wisconsin, and Wyoming. 7th, California, Colorado, Kansas, Oregon, Texas, and Utah. 8th, Indian Territory, Missouri, New Mexico, Oklahoma, Oregon, Texas, and Utah. 9th, Arkansas, California, Florida, Louisiana, and Texas. 10th, Louisiana, Mississippi, Ohio, and Oregon. 11th, California, Colorado, District of Columbia, Georgia, Michigan, North Carolina, Ohio, and Virginia. 12th, Indian Territory, Kansas, Massachusetts, Missouri, Nebraska, Nevada, and Oklahoma. 13th, Indian Territory, Iowa, Kansas, Missouri, Oklahoma, and Utah.

14th, Arkansas, Colorado, Indian Territory, Iowa, Kansas, Maryland, Missouri, Oklahoma, and Washington. 15th, Illinois, Kansas, Maryland, Missouri, Ohio, Oregon, Pennsylvania, Texas, West Virginia, and Wyoming. 16th, Colorado, Indian Territory, Kansas, Missouri, Nebraska, North Carolina, Oklahoma, South Dakota, Texas, and Utah. 17th, Illinois, Iowa, Kentucky, Louisiana, Mississippi, New Mexico, and North Carolina. 18th, Iowa, Missouri, North Carolina, Oregon, Pennsylvania, Tennessee, and Washington. 19th, Arkansas, Iowa, Kentucky, Montana, Ohio, Oregon, South Carolina, West Virginia, Wisconsin, and Wyoming.

20th, Arkansas, Illinois, Indiana, Iowa, Kansas, Missouri, Nebraska, New York, Ohio, Pennsylvania, and South Dakota. 21st, Arkansas, California, Florida, Indiana, Kentucky, New Hampshire, New York, North Carolina, South Carolina, and Virginia. 22d, Alabama, California, Florida, Georgia, Indiana, Kentucky, Michigan, North Carolina, Ohio, Tennessee, and Utah. 23d, California, Maryland, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, and West Virginia. 24th, California, Colorado, Illinois, Kansas, and Utah. 25th, California, Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, North Dakota, Ohio, South Dakota, and Wisconsin.

26th, Arizona, Colorado, Illinois, Indiana, Iowa, Michigan, Ohio, Pennsylvania, Tennessee, Texas, Utah, West Virginia,

and Wisconsin. 27th, Arizona, Colorado, Illinois, Indian Territory, Iowa, Kansas, Louisiana, Maryland, Mississippi, Nebraska, New Jersey, New Mexico, North Dakota, Ohio, Oklahoma, Pennsylvania, South Dakota, Texas, Virginia, and West Virginia. 28th, Arkansas, Colorado, Illinois, Kansas, Kentucky, Missouri, Nebraska, Ohio, and Tennessee. 29th, Alabama, Arkansas, Georgia, Kansas, Kentucky, Mississippi, Missouri, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, and Utah. 30th, Alabama, Arkansas, Colorado, Florida, Georgia, Illinois, Indiana, Kansas, Mississippi, Mis-

souri, New Mexico, Oklahoma, Tennessee, and Texas. 31st, Alabama, Indiana, Indian Territory, Kansas, Kentucky, Michigan, Oklahoma, Tennessee, Texas, and West Virginia.

SLEET.

Sleet was reported as follows: 2d, Nevada and Utah. 3d, Montana and North Dakota. 4th, Arizona and Utah. 6th, Nevada. 7th, Nebraska. 13th, Utah. 15th, New York. 20th, Iowa, Nebraska, and North Dakota. 21st, Arkansas and Iowa. 31st, Texas.

WINDS.

The prevailing winds in May, 1892, are shown on Chart II by arrows flying with the wind. In New England, the Ohio Valley and Tennessee, and over the southern and northern plateau regions south to west winds were most frequently noted; in the middle Atlantic states and on the middle Pacific coast they were generally from southwest to northwest; in the south Atlantic and east Gulf states and the lower lake region, from southeast to southwest; over the Florida Peninsula and in the west Gulf states, from east to south; in the middle and lower Missouri valleys, from northwest to north; on the middle-eastern slope of the Rocky Mountains, from northwest to northeast; on the southeast slope of the Rocky Mountains, from southeast to south; on the north Pacific coast, from west to north; on the south Pacific coast, westerly; in the Red River of the North Valley, northerly; and in the upper lake region, the upper Mississippi valley, and on the middle-eastern slope of the Rocky Mountains, variable.

HIGH WINDS.

[In miles per hour.]

Wind velocities of 50 miles, or more, per hour were reported at regular stations of the Weather Bureau as follows: 3d, 60, sw., at Chicago, Ill. 4th, 60, s., at Amarillo, Tex. 6th, 54, e., at Abilene, Tex. 8th, 66, sw., at Abilene, Tex. 10th, 56, s., at Fort Canby, Wash. 15th, 50, sw., at Keeler, Cal. 16th, 66, s., at Fort Canby, Wash. 18th, 56, nw., at Huron, S. Dak.; 50, se., at Sault de Ste. Marie, Mich. 19th, 52, e., at Block Island, R. I.; 51, nw., at North Platte, Nebr. 20th, 58, e., at Block Island, R. I.; 52, nw., at Valentine, Nebr. 24th, 56, n., at Amarillo, Tex. 27th, 54, se., at Huron, S. Dak.; 53, nw., at Kitty Hawk, N. C.; 52, nw., at Norfolk, Va.

LOCAL STORMS.

1st.—High winds prevailed in Kansas, heavy rain fell in Nebraska and South Dakota, and destructive thunder, rain, and hail storms occurred in Iowa, Missouri, Illinois, Indiana, and northern Ohio. Roofs were damaged by high wind at Cunningham, Kans., several buildings were blown down at Burns, Kans., an exceptionally heavy rainstorm was reported at Beatrice, Nebr., and a severe hailstorm visited Sioux Falls, S. Dak. In the middle Mississippi and lower Ohio valleys heavy rain injured crops and washed out railroads. At Withers Mill, Mo., wheat and fruit were damaged by a hailstorm. At Cleveland, Ohio, heavy rain in the afternoon flooded streets and cellars.

2d.—Destructive storms occurred from Texas to Indiana. Exceptionally heavy rain and hail storms were reported in northeastern Texas. Between 7 and 8 p. m. a peculiar formation of clouds was observed near Kingfisher, Okla. The cloud seemed to gyrate for a few minutes and then suddenly lowered a long arm curved somewhat like the letter "S." The forward movement was slow and steady, and the column broke several times only to form again. Previous to the formation of this tornado, an ordinary thunderstorm approached from the south, attended by heavy hail. The tornado moved northeast in a path about 100 feet in width and changed direction to southwest several times. Buildings in its path were scattered in all directions, trees were twisted off, balls of fire were observed,

and one person was killed. A tornado moving northeast passed near Orlando, Okla., at 2.30 p. m., in a path 80 to 100 feet in width, with rain, heavy hail, thunder, and lightning. Articles were thrown west from the center, several persons were injured, and the damage by wind and hail was placed at \$4,000. Another whirl which did not reach the earth hovered in the air about 15 minutes.

About 7 p. m. a storm passed over the northwestern part of Chautauqua county, Kans., destroying a number of buildings, killing one person, and injuring several. At Topeka, Kans., a heavy thunderstorm from the southwest began in the late afternoon. From 5.03 to 7.10 p. m. 2.12 inches of rain fell. Bottoms in the south part of the city were flooded. Much damage to property and some loss of life were reported near Topeka. At 7.30 p. m. a severe thunderstorm from the southwest visited Kansas City, Mo. Destructive storms were reported at various points in western Missouri. At Davenport, Iowa, a thunderstorm began 10.20 p. m. and continued until the early morning of the 3d. The heavy rains caused great damage to railroad property and interrupted traffic about Davenport. Thunder and hail storms occurred in central and northern Illinois. Near Rantoul, Ill., a barn was struck by lightning and 5 horses were killed. Lightning killed one person and injured another near Lincoln, Ill. Heavy rain fell in central and northern Indiana, and severe storms were reported in West Virginia.

3d.—Local storms occurred from Arkansas and Missouri over the Ohio Valley, and in Pennsylvania and New York. A heavy hailstorm was reported at Fayetteville, Ark., in the afternoon. Very heavy rain fell from eastern Kansas to Illinois. At Chicago, Ill., the wind reached a velocity of 60 miles per hour from the southwest. Three persons were reported killed by lightning near Hardinton, Ind. At Springfield, Ohio, 2 persons were killed and several were injured by lightning. At Ithaca, N. Y., a heavy thunderstorm from the west, with high westerly winds and rain, prevailed from 6 to 6.38 p. m. A barn was struck by lightning and burned, and lightning struck several barns east of Ithaca. Considerable damage was caused by lightning at other points in western New York. Heavy rain, with thunder and lightning, occurred throughout the Allegheny and Monongahela valleys, Pennsylvania, in the early afternoon, causing considerable damage to property. Heavy thunder and wind storms were reported in central and north-central Pennsylvania.

4th.—Heavy rain fell from eastern Kansas over Missouri, Iowa, and Illinois, and local storms were reported in the Ohio Valley and Tennessee, and in Massachusetts. At Topeka, Kans., the rainfall was very heavy, 2.00 inches fell from 10 a. m. to noon, and many houses in the south part of the city were washed from their foundations. A large number of washouts were reported and a number of bridges were carried away near Leavenworth, Kans. In Concordia, Kans., a stone house was struck by lightning and badly damaged. Rivers and streams in northern Missouri, Iowa, and Illinois were flooded by heavy rain, inundating low-lying districts, and causing great damage to property in towns and country. Marietta, Ohio, was visited by a destructive wind, rain, and thunder storm in the after-